

III. NEW SPECIES AND SUBSPECIES OF AFRICAN BIRDS.

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Preliminary studies of the four collections of African birds, which I have made, reveal several forms which are apparently undescribed, and it seems desirable to publish diagnoses of these in advance of the final reports upon the expeditions. These collections are being conjointly studied, as there are geographic races in one collection not represented in the others, and a more careful analysis is obtainable through an examination of the entire series.

The four collections dealt with in this paper were made by: 1, The Vernay Angola Expedition of the American Museum of Natural History, which was in the field from April until August, 1925, and collected about twelve hundred specimens in central and southern Angola; 2, The Straus African Expedition of the American Museum of Natural History, which secured nine hundred specimens in southern Tanganyika Territory and eastern Nyasaland from May until August, 1929; 3, The South African Expedition of the Carnegie Museum, which made a collection of six hundred specimens in western and southern Nyasaland and Southern Rhodesia from September, 1929, until February, 1930; 4, The Pulitzer Angola Expedition of the Carnegie Museum, which worked in central and southern Angola from October, 1930, until April, 1931, bringing back a collection of about thirteen hundred specimens.

I am indebted to the authorities of the American Museum of Natural History for permission to report on the birds of the Vernay and Straus Expeditions, and for their courtesy in extending to me all possible facilities. To Dr. James P. Chapin I am especially grateful for his advice and criticism. My thanks are due Dr. Lowe and Mr. Sclater of the British Museum for allowing me to examine certain specimens in the collections of that institution. To Dr. Friedmann of the United States National Museum, to Mr. Bangs of the Museum of Comparative Zoölogy, and to Mr. Bowen of the Philadelphia Academy of Natural Sciences I am grateful for the loan of specimens used in the studies here reported.

In the following descriptions the names of colors in quotations are those of Ridgway's "Color Standards and Nomenclature," 1912. All measurements are in millimeters. The wing is measured flat and straightened; that is, in a straight line from the bend of the shoulder to the tip of the longest quill. The tail is measured from the insertion of the middle rectrices to the tip of the longest feather. The measurement of the bill is that of the exposed culmen, in a straight line from its extremity to the point where the feathers of the forehead hide the culmen.

1. *Gymnobucco calvus vernayi*, subsp. nov.

Type.—American Museum of Natural History, No. 259419; adult male, gonads much enlarged; Mombolo, 6,000 ft., District of Cuanza Sul, Angola; February 13, 1925; Rudyerd Boulton, coll., Vernay Angola Expedition. Wing, 94; tail, 53; culmen, 20; tarsus, 21.

Subspecific characters.—Smaller than *G. c. major* Neumann. Differs from both *G. c. calvus* (Lafresnaye) and *G. c. major* in having the throat grayish white instead of dark grayish brown; the brown ground-color of the plumage more grayish brown and more heavily streaked above and below with grayish white; bristle-tufts grayish white instead of yellowish buff. Culmen shorter than in either *G. c. calvus* or *G. c. major*.

Description.—Nasal,¹ malar and mental bristles grayish white (slightly discolored in the type); fore part of the crown bare, skin black, unfeathered except for sparse, fine hair-like, black bristles; ground-color of the feathers of the upper parts dark brown (a little grayer than "mummy brown"); feathers of the hind crown with pale grayish brown centers, most distinct toward their bases; feathers of the back with white shafts and broad grayish white center streaks, distinct but poorly defined; rump and upper tail-coverts unstreaked, and washed with grayish brown; throat dirty grayish white; remainder of the under parts "buffy brown"; feathers of the breast and belly with white shafts and pale grayish white centers; crissum and under tail-coverts "buffy brown," washed with grayish and yellowish; wing-coverts "clove-brown," washed and shaded at the extremities of the feathers with "buffy brown"; primaries and outer secondaries dark "clove-brown" edged externally with black; inner secondaries olive-

¹Reichenow, *Vög. Afrika's*, II, 1902, p. 137, and Bates, *Handbook Birds of W. Africa*, 1930, p. 276, incorrectly state that there are no tufts of bristles behind the nostrils.

brown, tectrices edged internally with pale grayish brown on the basal portion of the inner web; lining of the wings silvery brown; under wing-coverts grayish brown; rectrices "clove-brown," slightly paler on the inner web.

Remarks.—*G. c. calvus* is distinguished from the other races by the darker and richer tone of the brown of the under parts and by an almost total lack of shaft-streaks on the feathers of the breast. *G. c. major* is intermediate in these two respects between *calvus* and *vernayi*, but the characters are constant and the race is well marked. *G. c. vernayi* is more distinct than either of the other races.

The five birds collected by Dr. Chapin on the Lower Congo are intermediate between typical *major* and *vernayi*. They are nearer to birds from Angola than to those from Cameroon, but are distinguished from the former by the narrower streaking of the lower parts and by the darker gray of the throat, and possibly merit subspecific recognition. In the series from Angola there are several subadult specimens, which are characterized by the narrow sulphur-yellow edges of the feathers of the back and under parts, and by the persistence of the curious spined tubercle on the proximal inferior portion of the tarsus. It would appear that this tubercle disappears through the agency of wear and occasional scaling, rather than by complete shedding at one time, as in the case of the "egg-tooth" on the bills of many nestling birds.

Comparative measurements of the three races of *calvus* are as follows:

G. c. calvus. One male: wing, 89 (worn); tail, 48; culmen, 22; tarsus, 23. Two females: wing, 90 (90); tail, 48-50 (49); culmen, 20-20.5 (20.2); tarsus, 22 (22). Two specimens (sex undetermined): wing, 87-92 (89.5); tail, 46-50 (48); culmen, 18.7-21 (19.8); tarsus, 20-23.5 (21.8).

G. c. major. Eight males: wing, 95-106 (99.2); tail, 49-60 (53.8); culmen, 20.5-22 (21.2); tarsus, 22.5-25 (24). Four females: wing, 95-100 (98.1); tail, 51-57 (54); culmen, 21-22 (21.5); tarsus, 23.5-24.5 (24).

*G. c. vernayi.*² Eight males: wing, 90-94 (92.5); tail, 51-59 (54); culmen, 19-20 (19.8); tarsus, 21-24 (22.8). Nine females: wing, 91-97.5 (94.5); tail, 52-58 (54.9); culmen, 19-20 (19.6); tarsus, 23-24 (23.5).

Specimens examined.—*G. c. calvus.* One from Sierra Leone (Am. Mus. Nat. Hist.); two from Bangah and one from Du River, Liberia (Mus. Comp. Zool.); one from "Taveta"—Ussher Coll. (U. S. Nat. Mus.).

²The five birds from the Lower Congo are not included. They are slightly smaller than typical *vernayi*.

G. c. major. Two from Efulen and eleven from Minikalli, Cameroon (Carnegie Mus.).

G. c. vernayi. Fourteen from Moco Mt., 6,400-6,500 ft., Angola (Carnegie Mus.); six from Mombolo, 6,000 ft., Angola; two from Thysville, and three from Ganda Sundi, Belgian Congo (Am. Mus. Nat. Hist.).

2. *Viridibucco coryphæa angolensis*, subsp. nov.

Type.—American Museum of Natural History, No. 264721; adult male; Mombolo, 6,000 ft., District of Cuanza Sul, Angola; June 20, 1927; H. and C. Chapman, coll. Wing, 56; tail, 28; culmen, 9; tarsus, 14.

Subspecific characters.—Wing slightly longer than in *V. c. coryphæa* (Reichenow); bill slightly shorter. Gray of the under parts much paler and less olive; yellow of the upper parts more greenish, instead of "lemon chrome." Differs from *V. c. jacksoni* W. Sclater by having a considerably longer wing and bill, and in that the gray of the under parts and yellow of the upper parts are paler.

Description.—Forehead, lores, superciliary stripe, sides of the crown, scapulars, back, and upper tail-coverts glossy blue-black; the feathers of the center of the crown, nape, and back mottled with "picric yellow"; auriculars black; a white line extends from the nostrils under the eye and ear-coverts to the side of the neck; rump "pale lemon-yellow"; under parts "pale smoke-gray" lightly washed with yellowish green on the breast and flanks; under tail-coverts the same; wing-coverts glossy black, the middle series broadly, and the greater series narrowly, edged with yellow; primaries and secondaries fuscous, the secondaries edged externally with yellow; all the wing-feathers internally edged at their bases with white; under wing-coverts white; tail glossy black, the feathers narrowly edged on the base of the outer web with yellowish white.

Remarks.—This race is most closely related to *V. c. jacksoni* from Mt. Ruwenzori and the Kivu Volcanoes, but is readily distinguished by its paler yellow and more grayish plumage, as well as by its larger size. *V. c. coryphæa* with its "lemon-chrome" marking is very distinct, and is intermediate in length of wing between *jacksoni* and *angolensis*.

In one specimen from Mombolo, which from the color of its bill and structure of the feathers is obviously immature, the yellow of the crown is very pale and indefinitely demarked from the black of the upper parts, and the under parts are more richly suffused with greenish than in two adults.

Unfortunately the four original specimens of this race collected by the Vernay Angola Expedition were lost in transit, and only their measurements were preserved in manuscript. Subsequently three others were obtained, one of which is made the type.

Comparative measurements of adults of the three races follow:

V. c. coryphæa. Five males: wing, 53-55 (54.1); tail, 26-28 (27); culmen, 9.4-10.5 (9.7); tarsus, 14.3-15 (14.8). Two females: wing, 53-53.5 (53.2); tail, 25.5-27.5 (26.5); culmen, 9.4-9.5 (9.4); tarsus, 15 (15).

V. c. jacksoni. Six males: wing, 50-53 (51); tail, 25.5-27 (26.7); culmen, 8-9 (8.5); tarsus, 13.5-14.5 (14.1). Three females: wing, 51-54 (52.4); tail, 25-26 (25.5); culmen, 8-8.5 (8.2); tarsus, 14-14.5 (14.2).

V. c. angolensis. Four males: wing, 55-57 (56); tail, 26.5-28 (27.3); culmen, 9-9.6 (9.4); tarsus, 14-14.5 (14.2). Two females: wing, 55-56 (55.5); tail, 25-27 (26); culmen, 9 (9); tarsus, 14-14.5 (14.2).

Specimens examined.—*V. c. coryphæa*. Two from Ninong, Manenguba Mts.; one from Bambulue Lake, 6,000 ft., near Bamenda; one from Kumbo, 6,000 ft.; one from Bamenda, 5,500 ft.; one from between Kumbo and Bamenda, 4,000 ft.; one from north of Chang, 5,000 ft. (Brit. Mus. Nat. Hist.).

V. c. jacksoni. One from Kanyango, Uganda, (the type) (Brit. Mus. Nat. Hist.). Two from northwestern slope of Mt. Mikeno, 7,900 ft.; four from near Lubero, 7,500-7,600 ft.; two from Kalongi, 6,900-7,100 ft., western slopes of Mt. Ruwenzori; one from Mt. Musandama, 7,900 ft., northeastern end of Mt. Ruwenzori, eastern Congo (Am. Mus. Nat. Hist.).

V. c. angolensis. Seven from Mombolo, 6,000 ft., Angola (Am. Mus. Nat. Hist.).

ONYCHORHINUS, subgen. nov.

Type: Macrosphenus (Onychorhinus) pulitzeri, sp. nov. (*vide infra*).

Diagnosis.—Bill shorter than head, stouter than in other species of *Macrosphenus* Cassin; exposed culmen gently decurved, more strongly so terminally; inferior outline of mandible uniformly convex, more so than in *Macrosphenus* or *Suaheliornis* Neumann; depth of bill at gonys equal to its width, not less than its width as in *Macrosphenus* and *Suaheliornis*. Wing short and greatly rounded. Tail about four-fifths the length of the wing. Legs, feet, and claws comparatively strong and robust.

Remarks.—*M. pulitzeri* is interesting because it is in many ways intermediate between the genera *Macrosphenus* and *Suaheliornis*. I accordingly propose to unite them, retaining the latter as a subgenus, in order to indicate more accurately the relationship. The arrangement would provide for three subgenera in the genus *Macrosphenus*: the first, *Macrosphenus*, including *flavicans* Cassin and *kempi* (Sharpe);³ the second, *Onychorhinus*, including *pulitzeri*, sp. nov., and *concolor* (Hartlaub); the third, *Suaheliornis*, including *kretschmeri* (Reichenow and Neumann) and *albigula* (Grote).³

A subgeneric division not only correlates structural characters within the genus, but also indicates geographical distribution. *Macrosphenus* is West African; *Suaheliornis*, East African; and *Onychorhinus* is West African and Angolan. If I may dare to suggest a phylogenetic tree, the cut here given seems best to illustrate the relationships of these six species.

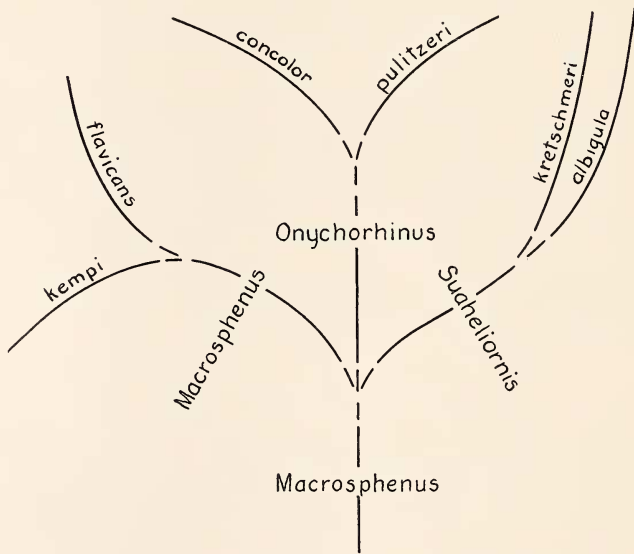
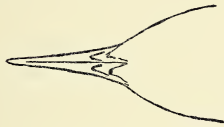
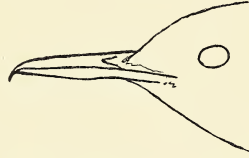


Fig. 1. Phylogenetic tree of the genus *Macrosphenus*

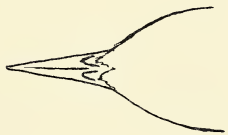
³As I have examined neither of these species I cannot be sure of their relationships. However, Mr. Bannerman's review of *Macrosphenus* (*Ibis*, 1921, p. 121) gives such a clear picture of *kempi*, and *albigula* appears to be so near *kretschmeri* that the above allocation of these species would seem justifiable.

The figures of the bills shown below demonstrate more adequately than long descriptions their differences and similarities.



M. flavicans

M. kretschmeri



M. concolor

M. pulitzeri

Fig. 2. Variation of bills in the Genus *Macrosphenus*

The wing formulæ of the four species examined show a considerable degree of variation. In every case the wing is greatly rounded and the amount of rounding is probably correlated with the habits and local habitat of the individual species. The first primary is considered to be the one at the carpal joint; the tenth is the outermost. In *flavicans* the formula is 5, 4, 6, 7, 8, 9, 10; in *concolor*, 6, 5, 7, 8, 9, 10; in *pulitzeri* and *kretschmeri*, 4, 5, 6, 7, 8, 9, 10.

The proportion of length of wing to length of tail is also variable.

In *kretschmeri* they are almost equal, and in *flavicans* the tail is proportionately shorter. The following percentages are calculated by dividing the length of wing by the length of tail: *M. kretschmeri*, 95 percent; *M. pulitzeri*, 81 percent; *M. concolor*, 70 percent; *M. flavicans*, 69 percent. The graduation of the tail-feathers puts *kretschmeri* again at one extreme, while *pulitzeri* has the least rounded tail. The length of the outermost rectrix is divided by the length of the middle pair of rectrices, giving the following percentages: *M. kretschmeri*, 77 percent; *M. flavicans*, 82 percent; *M. concolor*, 83 percent; *M. pulitzeri*, 83 percent.

Subgenera are in my opinion of value only when they show to advantage the relationships of the species within a genus. The six species under discussion form such a heterogeneous, yet at the same time obviously related group, that it is illogical to accord to any one form generic rank. Uniting them simplifies the taxonomy, but disregards their biological significance. Splitting them into monotypic genera could serve no useful purpose. Accordingly, a subgeneric division seems desirable, even though it adds to an ever-growing multitude of names.

The following notes on specimens of the genus *Macrosphenus* that have been examined may be of interest. Of two specimens of *M. f. flavicans* examined, a female collected by Sr. Correia on Fernando Po, is much larger than a male collected by Mr. Bates at Biteye. The latter is, however, subadult. Compared with the series of *M. f. hypochondriacus* (Reichenow) collected by Dr. Chapin in the Upper Congo, these birds are more greenish yellow and less orange. An immature specimen of *hypochondriacus* from Avakubi is in brownish juvenal plumage. The throat is irregularly grayish and greenish brown, and the sides of the breast are distinctly golden brown. Two specimens of *M. concolor* collected by Sr. Correia on Fernando Po are distinctly larger than birds from either Cameroon or the Upper Congo, and they are more yellowish on the breast, grayer on the flanks and belly, and paler grayish green on the upper parts. They may represent a distinct race.

3. *Macrosphenus pulitzeri*, sp. nov.

Type.—Carnegie Museum, No. 108951; adult female, egg in oviduct; Chingoroi, 2,200 ft., District of Benguela, Angola; December 1, 1930;

R. and L. Boulton, coll., Pulitzer Angola Expedition. "Iris, putty-color; mandible, horn-color; maxilla, flesh-color; legs and toes, flesh-color; nails, horn-color." Wing, 63; tail, 51; culmen, 16; tarsus, 25.

Description.—Entire upper part of the head, ear-coverts and nape between "light brownish olive" and "citrine drab"; lores dusky; back, scapulars, and upper tail-coverts between "deep olive" and "brownish olive"; chin and throat "olive-buff," the margins of the feathers darker than the centers, which have a grayish tinge; breast and belly "yellowish olive-buff," the terminal portions of the feathers faintly "reed-yellow"; flanks "ecru-olive"; under tail-coverts "olive-ocher"; wings and tail "brownish olive," feathers margined externally with greenish olive; basal inner margins of the wing-feathers grayish white; under wing-coverts dirty yellowish white.

Comparative measurements of specimens examined are as follows:

M. k. kretschmeri. One male: wing, 66; tail, 61; culmen, 17; tarsus, 23. One female: wing, 70; tail, 70; culmen, 16; tarsus, 23.5.

M. pulitzeri. One female: wing, 63; tail, 51; culmen, 16; tarsus, 25 (type).

M. f. flavicans. One male: wing, 56; tail, 45; culmen, 15.5; tarsus, 22. One female: wing, 64; tail, 44; culmen, 16; tarsus, 22.5.

M. f. hypochondriacus. Six males: wing, 58-64 (61); tail, 41-47 (44); culmen, 15-16.5 (15.9); tarsus, 21-21.5 (21.3). Four females: wing, 53-58 (56); tail, 35-39 (37); culmen, 15-16 (15.5); tarsus, 19.5-21 (20.3).

M. concolor. Six males: wing, 56-63 (58.8); tail, 38-44 (40.7); culmen, 13-16 (13.9); tarsus, 20.5-22 (21.2). Four females: wing, 56-60 (57.5); tail, 38-43.5 (40.1); culmen, 13-13.5 (13.4); tarsus, 19-21 (19.9).

Specimens examined.—*M. k. kretschmeri*. Two from Bungu, Usambara, Tanganyika Terr. (Am. Mus. Nat. Hist.).

M. pulitzeri. One from Chingoroi, Benguela, Angola (Carnegie Mus.).

M. f. flavicans. One from Bitye, Cameroon, and one from Fernando Po (Am. Mus. Nat. Hist.).

M. f. hypochondriacus. Five from Avakubi, one from Medje, two from Rungu, two from Niangara, one from Ngayu, and one from Manamama, between Bafwabaka and Ngayu, northeastern Belgian Congo (Am. Mus. Nat. Hist.).

M. concolor: Three from Avakubi, four from Medje, one from Ngayu, and one from Irumu, Belgian Congo; two from Fernando Po; one from Assobam and one from Yaunde, Cameroon (Am. Mus. Nat. Hist.). One from Lolodorf, Cameroon (Carnegie Mus.).

4. *Apalis cinerea grandis*, subsp. nov.

Type.—Carnegie Museum, No. 109479; adult male, gonads somewhat enlarged; Moco Mt., 6,500 ft., District of Benguela, Angola; February 27, 1931; R. and L. Boulton, coll., Pulitzer Angola Expedition. Wing, 62; tail, 73; culmen, 11; tarsus, 21.5.

Subspecific characters.—Larger than *A. c. cinerea* (Sharpe) or *A. c. sclateri* (Alexander). Crown ashy gray instead of brown; flanks grayer.

Description.—Forehead "pale mouse-gray," top of head and hind crown "mouse-gray"; lores and auriculars "deep mouse-gray"; back, scapulars, and upper tail-coverts "deep neutral gray"; under parts white, washed with buffy, brightest on the upper breast and flanks, all of the feathers with gray bases, which are most prominently revealed on the sides of the belly; flanks "deep gull-gray"; wing-coverts fuscous edged with "deep neutral gray"; alula, primaries, and secondaries fuscous, the latter edged externally with lighter brown; all the wing-feathers internally edged with silvery gray; under wing-coverts white; tail considerably graduated, the outermost feathers thirty-two millimeters shorter than the middle pair; two central pairs of rectrices uniform fuscous; the third pair with a triangular white spot at the tip, the apex of which extends eleven millimeters along the shaft; three outer pairs of rectrices white.

Remarks.—*Apalis cinerea minor* Granvik (= *granviki* Grote) seems almost certainly to be a synonym of typical *cinerea*. There is a great amount of individual variation in size, and the series in the American Museum demonstrates that this variation cannot be correlated geographically. The range of variation in birds taken in the vicinity of Nairobi practically includes the range in size of Elgon birds. Although I have seen no specimens of supposed *sclateri* from West Africa, I am inclined to follow Count Gyldenstolpe⁴ in uniting all East and West African specimens under the name *cinerea*. Following are the comparative measurements of the adult specimens examined:

A. c. cinerea. Eight males: wing, 49-56 (53.5); tail, 49-60 (56); culmen, 10-11 (10.5); tarsus, 19-20 (19.6). Six females: wing, 48-58 (52.5); tail, 46-51 (49.8); culmen, 10-11 (10.3); tarsus, 18-20.5 (19.3).

A. c. grandis. Five males: wing, 61-64 (62.4); tail, 69-74 (71.4); culmen, 10.8-11 (10.9); tarsus, 21-22 (21.4). One female: wing, 58; tail, 58; culmen, 10.5; tarsus, 22.

Specimens examined.—*A. c. cinerea*. Three from Marsabit, six from Ngong Forest, one from Mara River, five from Molo, one from Kijabe,

⁴1926, Arkiv. för Zoologi, Bd. 19A, N:o. 1, p. 48.

and one from Mt. Kenya, Kenya Colony; one from Djugu, eastern Ituri District, Belgian Congo (Am. Mus. Nat. Hist.).

A. c. grandis. Six from Moco Mt., 6,300-6,500 ft., Angola (Carnegie Mus.).

5. *Apalis bamendæ strausæ*, subsp. nov.

Type.—American Museum of Natural History, No. R. B. 2799; adult male, gonads not enlarged; Mt. Rungwe, 5,650 ft., Tanganyika Territory; June 11, 1929; R. and L. Boulton, coll., Straus African Expedition. Wing, 50; tail, 49; culmen, 9; tarsus, 18.

Subspecific characters.—Similar to *A. b. bamendæ* in that the face and ear-coverts are chestnut, rather than the same color as the back as in *A. porphyrolæma*. The chestnut on the head of the new race is, however, much darker than it is in *A. b. bamendæ*. It differs from *A. b. chapini* in having the chin, throat, and malar region tawny instead of white.

Description.—Lores, superciliary stripe, auriculars and forehead dark "chestnut," extending from the latter as a wash over the grayish brown of the crown; back, scapulars, and wing-coverts "deep neutral gray," overlaid with a very slight wash of fuscous; upper tail-coverts more strongly washed with brownish; throat "tawny"; feathers of the upper chest "tawny" with gray bases; sides of breast and flanks "pale mouse-gray," center of belly paler and with a buffy wash; under tail-coverts gray, strongly washed with "tawny"; tibiæ dark "chestnut"; primaries and secondaries blackish brown, the inner secondaries edged externally with "olive-brown"; tectrices internally edged with pale gray; "axillars" whitish; under wing-coverts white, tipped with "tawny"; rectrices, twelve in number, dark grayish brown, each feather with an indistinct buffy tip.

Remarks.—In place of the arrangement of certain species and subspecies of *Apalis* given in Mr. Sclater's "Systema Avium Ethiopicarum," I propose the following:

<i>Apalis porphyrolæma</i>	<i>porphyrolæma</i>	Reichenow and Neumann
"	"	<i>affinis</i> Ogilvie-Grant
"	"	<i>vulcanorum</i> Gyldenstolpe
"	<i>bamendæ bamendæ</i>	Bannerman
"	"	<i>chapini</i> Friedmann
"	"	<i>strausæ</i> , sp. nov.
"	<i>goslingi goslingi</i>	Alexander
"	"	<i>hardyi</i> Bannerman

I am grateful to Dr. Chapin for calling my attention to the fact that *goslingi* is obviously not conspecific with *porphyrolæma*. *Goslingi* and

hardyi are birds of the lowland forests; all of the other races are found only in forest at high latitudes. In the races of *porphyrolæma* the lores, forehead, auriculars, and subocular region are slate-gray, the same color as the back. The races of *bamendæ* have these same areas tawny rufous, the same color as the throat. The distribution of *Apalis bamendæ* is unusual, including as it does the Cameroon and Tanganyika highlands, while *porphyrolæma* occupies the Kenya and eastern Congo highlands.

Comparative measurements are as follows:

A. p. porphyrolæma. Two males: wing, 49-55 (42); tail, 49-63.5 (66.2); culmen, 9-9.4 (9.2); tarsus, 18-19 (18.5).

A. p. affinis. Three males: wing, 51-54 (52.3); tail, 56.5-61.5 (59); culmen, 8.9-9.5 (9.1); tarsus, 19.3-20 (19.6). Two females: wing, 50 (50); tail, 45.5-50 (47.7); culmen, 9-9.2 (9.1); tarsus, 18-19.5 (18.7).

A. b. bamendæ. One female: wing, 50; tail, 38.5; culmen, 9.5; tarsus, 18.4.

A. b. chapini. Three females: wing, 47.5-50.5 (49); tail, 45-52 (48.6); culmen, 9.5-10 (9.8); tarsus, 17-18.5 (17.8).

A. b. strausæ. Two males: wing, 49-50 (49.5); tail, 49-51 (50); culmen, 9 (9); tarsus, 18 (18).

Specimens examined.—*A. p. porphyrolæma*. One from Nandi, and one from Molo, Kenya (Am. Mus. Nat. Hist.).

A. p. affinis. One from Lubero, one from Kalongi, and three from western slopes of Mt. Ruwenzori, eastern Congo (Am. Mus. Nat. Hist.).

A. b. bamendæ. One from Dschang, Cameroon (Am. Mus. Nat. Hist.).

A. b. chapini. Two from Kigogo, Uzungwe, and one from Vituru, Uluguru, Tanganyika Territory (Mus. Comp. Zoöl.).

A. b. strausæ. Two from Mt. Rungwe, Tanganyika Territory (Am. Mus. Nat. Hist.).

A. g. goslingi. The series in the American Museum of Natural History, from the Ituri River, near Penge and Avakubi, and from the Lindi River near Bengamisa, Belgian Congo.

6. *Seicercus lauræ*, sp. nov.

Type.—Carnegie Museum, No. 109478; adult male, gonads not enlarged; Moco Mt., 6,600 ft., District of Benguela, Angola; February 27, 1931; R. and L. Boulton, coll., Pulitzer Angola Expedition. Wing, 62; tail, 43; culmen, 9; tarsus, 21.

Specific characters.—Differs from other known species in pattern of coloration. Most nearly related to *S. ruficapilla* (Sundeval), but easily distinguished by its larger size and the uniform yellow-green of the upper parts.

Description.—Entire upper parts between "yellowish oil-green" and "warbler-green"; superciliary stripe greenish yellow; lores and a narrow streak behind the eye dusky; eye-ring bright yellow, interrupted by the dusky lores and postocular streak; throat, breast, and cheeks bright "lemon-yellow," the latter washed with dusky; lower breast and center of the belly white; flanks pale gray slightly washed with olive-green; tibiae and under tail-coverts "pale lemon-yellow"; wing-coverts, primaries, and outer secondaries dark fuscous; inner secondaries and rectrices more olive-brown, each feather broadly margined externally with yellowish green; inner margins of the primaries and secondaries whitish; "axillars" and feathers of the edge of the wing bright yellow; under wing-coverts white, tipped with "lemon-yellow."

Remarks.—This species, the first of its genus to be found in southwestern Africa, is apparently confined to the mountain forest of the Benguela highlands. Its bill is not so sharp and attenuated as that of *S. umbrovirens* (Rüppell), and is intermediate in shape between that of *S. ruficapilla* and *S. budongoënsis* (Seth-Smith).

A female also collected on Moco Mountain does not differ in coloration from the type. Its measurements are: wing, 58; tail, 39; culmen, 8.5; tarsus, 19.

7. *Laniarius nyasæ*, sp. nov.

Type.—Carnegie Museum, No. 107130; female, ovaries not enlarged, skull almost completely ossified; twenty miles east of Mzimba, 6,200 ft., Nyasaland; October 2, 1929; R. and L. Boulton, coll., South African Expedition. Wing, 82; tail, 72; culmen, 19; tarsus, 32.

Specific characters.—Unlike any known species of *Laniarius*. Upper parts slate-olive; under parts dusky olive-green.

Description.—Upper parts slate-olive ("chætura-drab"), the head slightly darker; forehead blackish; ear-coverts and sides of the head more brownish than the back; feathers of the rump indistinctly tipped with dusky olivaceous buff; throat and upper chest dusky olive; breast buffy olive; center of the belly "colonial buff," shaded with dusky olive; flanks and sides of the breast "brownish olive"; crissum and under tail-coverts olive; tibiae "dresden brown"; primaries and secondaries blackish brown, slightly edged with dark gray on their outer webs; rectrices blackish brown; lining of the wings and tail silvery brown; under wing-coverts dusky brown.

Remarks.—Unfortunately this specimen is not entirely adult. I feel confident, however, that its characters do not differ in any essential from the adult plumage. Juvenal specimens of *L. funebris* (Hartlaub), *L. fülleborni* (Reichenow), and *L. leucorhynchus* (Hartlaub) have been examined, and they show no resemblance to this bird from the Vipya plateau. The new form is probably most nearly related to *Laniarius fülleborni* of the Mt. Rungwe district.

Note on **Chlorophoneus münzneri** Reichenow.

A male of this beautiful Bush-Shrike, collected on Mt. Rungwe, Tanganyika Territory, by the Straus Expedition, agrees in every detail with Reichenow's original description. For several reasons I am of the opinion that *münzneri* constitutes a distinct species, and is not a race of *Chlorophoneus rubiginosus* (Sundeval). It has no indication of a white eyebrow; the tail is entirely olive-green and yellow with no trace of black; the throat is pure white; the bill is much weaker. While the details of the range of *Chlorophoneus rubiginosus*, to which this form has heretofore been referred, are not yet completely worked out, Mt. Rungwe and Sanyi (type-locality of *münzneri*) are directly between northern Nyasaland and the Uluguru Mts., in Tanganyika, from which localities *C. r. bertrandi* (Shelley) has been recorded. It would be illogical to make such very distinct forms conspecific, when they occupy similar and in some details overlapping territory. A female of *C. münzneri* from the Usambara Mountains is similar to the male above described, except that the blue-gray of the head and nape is duller. It has no trace of white lores or eyebrow. Comparative measurements are as follows:

C. münzneri. One male: wing, 92; tail, 94; culmen, 15; tarsus, 25. One female: wing, 89; tail, 84; culmen, 14; tarsus, 24.

C. r. bertrandi. Two males: wing, 81-86 (83.5); tail, 79-84 (81.5); culmen, 17-17.5 (17.3); tarsus, 26-26.5 (26.3). Four females: wing, 79-81 (80.2); tail, 76-78 (76.8); culmen, 16-17.5 (16.6); tarsus, 25-26.5 (25.4).

Specimens examined.—*C. münzneri*. One from Mt. Rungwe (Am. Mus. Nat. Hist.). One from Usambara (Acad. Nat. Sci. Phila.).

C. r. bertrandi. Three from Mt. Selinda (Carnegie Mus.). One from Mt. Mlanje (Am. Mus. Nat. Hist.). Two from Mt. Selinda (Mus. Comp. Zoöl.).

Carnegie Museum, November 10, 1931.

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OF THE

CARNEGIE MUSEUM



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ANNALS
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VOL. XXI, NO. 2.

EDITORIAL NOTES

The thirty-fifth formal celebration of Founder's Day took place on October 15th, at which time public announcement was made of the opening of the Thirtieth International Exhibition of Paintings under the auspices of the Department of Fine Arts of the Institute. The principal address was made by his Excellency, Governor Albert E. Ritchie, of Maryland. Mr. Ralph Pulitzer was asked by Col. Samuel Harden Church, who presided, to address the audience; but, with that modesty which characterizes him, he only responded with a bow to the presiding officer and to the audience. At a small dinner, attended only by the Trustees of the Institute and the Heads of departments, Mr. Pulitzer was prevailed upon to speak and gave a most interesting account of some of his experiences on the occasion of his expedition to Angola on behalf of the Carnegie Museum.

A great deal of the interesting material collected by the Pulitzer Expedition to Angola, giving at least a synoptic view of the results of the expedition, was placed upon exhibition on the lower floor of the Carnegie Museum, where it will remain for a while as a temporary exhibit. The display consists of maps showing the regions visited, photographs of the scenery, and representative specimens of the mammals, birds, reptiles, fishes, insects of various orders, and plants collected. The whole was tastefully arranged, and among other things included is a miniature case showing the Giant Sable Antelope, as it will appear when mounted.

In the early evening of Saturday October 31, 1931, it was discovered that a fire had broken out in a large switch board which at

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the time of the construction of the building had been placed in the room for many years designated as The Laboratory of Mammals. After a vain attempt had been made by Mr. Fulton, the assistant superintendent of the building, to extinguish the flames by "hand extinguishers," which were available, he sent in an alarm to the Fire Department of Pittsburgh, which was quickly responded to. The firemen distinguished themselves by the speedy manner in which they got the flames under control and also preserved the contents of the room and of the building from damage by water, they having brought with them many tarpaulins which they used with energy and efficiency. The heartfelt thanks of all connected with the Museum and its friends are due to these sturdy firemen for the quick manner in which they acted, thus averting what might have been a catastrophe of considerable magnitude. This large switch-board was erected at the time the new building came into being and we have always believed that the building was fire-proof. Unfortunately the doors, which concealed the electric apparatus had been built of mahogany instead of metal. A crossed wire on the switchboard set fire to the door which evidently burned for some time and the heat set fire to two cases, one quite large and the other a smaller one resting upon it. The contents of the larger case on the floor, consisting of skins of bears, of seals, and of walruses, was so badly injured as to make it impossible to use the skins for mounting purposes. They were very badly singed. The contents of the small upper case were partly destroyed. Our chief regret in connection with this case is that a few days before there had been placed in it two trays containing some of the smaller mammals collected on the Pulitzer Expedition to Angola, which had not yet been studied, nor reported upon. The loss sustained is greatly to be deprecated, but as Dr. Thomas Arbuthnot so kindly said in a letter to the Director: "I weep not for the loss of the specimens of the Alaskan Brown Bear, which I presented to the Museum, because the species is not extinct, and this may be an argument for my having another hunting expedition." What is most deprecated by all of us is the loss of over one hundred specimens of small mammals, principally rodents, collected by the Pulitzer Expedition. Among these we had fondly hoped that we might detect possibly some species new to science, for they had been obtained in localities not often visited by zoölogical collectors.

The work of rebuilding the switchboard, which controls the lights

on the second and third floors of the Museum in the rear, is rapidly going forward, and precautions are being taken, which it is believed will prevent the recurrence of such an accident, not only in this part of the building but elsewhere. Metal and unflammable doors are being provided not only for the switchboard, which was destroyed, but elsewhere in the building.

It is a comfort to reflect that the great collections made by the Pulitzer Expedition with the exception of the small rodents were all in places of absolute safety. We may, however, have to send another expedition to Angola, if the ways and means can be found.

On October 16, 1931, at 4:00 o'clock in the afternoon the friends and associates of Mr. and Mrs. Boulton met them in farewell at a tea given in their honor. Mr. Boulton has accepted the Assistant Custodianship of Ornithology in the Field Museum of Chicago. While we congratulate Mr. Boulton upon his advancement to a position in which he will be more adequately recompensed for his services, than could be arranged in this Museum with its limited resources, we feel that we are not entirely sundered from him, and we have the assurance that he will in due time make to this Museum for publication a full report upon the collections of birds which he made for us in Africa on his previous journeys and upon his last journey with Mr. Pulitzer.

On November 2, 1930, Oliver Perry Hay departed this life in the eighty-fifth year of his age. He was born in Saluda Township, Jefferson County, Indiana, on May 22, 1846.

He was the author of several papers published in the *Annals of the Carnegie Museum* upon fossil Testudinata, the types of which are in this Museum.

His great work upon the fossil turtles of North America, published by the Carnegie Institution of Washington in 1908 will always remain as a monument to his assiduous researches and learning in this special field. But he will probably be more widely known by paleontologists through his *Bibliography of Fossil Vertebrates* first published by the U. S. Geological Survey in 1902, in one volume of 868 pages, and again issued in revised and completed form in two volumes by the Carnegie Institution of Washington. The first volume, giving the names of authors and the titles of their papers, contains pp. i-viii+1-918; the second volume, pp. i-xiv+1-1074, gives a systematically arranged

Catalog of the Fossil Vertebrates of the Continent. To the student these works are indispensable. Besides these great works he was the author of one hundred and ninety-one articles, shorter or longer, upon various subjects in later years relating principally to fossils from various Pleistocene deposits. A list of these papers from the pen of Professor R. S. Lull of the Peabody Museum has just appeared in the Bulletin of the Geological Society of America, Vol. XLII, pp. 34-48.

The Editor of these Annals was well acquainted with and prized his friendship with Dr. Hay, which covered nearly the last forty years of Hay's life. We differed sometimes with each other in our opinions on scientific matters, and sparred with each other in print, but personally our relations were most friendly. In common with his fellow paleontologists the Editor deeply mourns his loss as that of a friend and most assiduous and capable worker in a difficult field. *Peace to his ashes!*

IV. NEW SPECIES FROM THE OLIGOCENE OF THE UINTA.

BY O. A. PETERSON.

It is quite clear that the name "Upper Uinta," which was used by Peterson and Kay in their publication, *Ann. C. M.*, Vol. XX, pp. 293-305, might in the future be a source of confusion to students. The "Upper Uinta" is a term which was and will be commonly used by geologists and paleontologists in referring to the upper series of the Uinta Eocene, especially "Horizon C." The name "Duchesne," suggested by Scott,¹ is therefore proposed for the Oligocene horizon, which rests upon the Upper Eocene (Horizon C) in the Uinta Basin. The Duchesne River in Duchesne County, Utah, has its source on the southern side of the Uinta Mountains. The stream traverses these upper beds, which are now determined to be Basal Oligocene, before its confluence with the Green River a half mile below Ouray, Utah. As stated by Peterson and Kay, *l.c.* p. 294, the geographical area covered by these Oligocene strata has an east-west extent of approximately eighty miles, and seldom exceeds from twelve to fifteen miles in a north-south direction along the northern margin of the Uinta Basin. From Randlette westward, along the Duchesne river, these Oligocene beds are quite clearly defined from the underlying Uinta series (Horizon C). Peterson and Kay (*l.c.*, p. 295) have already called attention to the fact that "the sandstones weather out to characteristic reddish brown cliffs, which rest on softer clays [Horizon C of the Uinta] along the streams and on the divides between Lake Fork, 'Dry Gulch,' Duchesne, and the course of other rivers." Although a tentative division was made by Peterson & Kay between the Duchesne beds and the underlying Uinta strata to the eastward from Randlette, the distinction between the two horizons is not so clear toward the eastern end of the basin.

The relationship of the fauna of the Duchesne Oligocene, as now known, is less sharply defined from that in the underlying Uinta

¹Since the publication of *Annals of the Carnegie Museum*, Vol. XX, 1931, Art. XII, pp. 293-305, Professor W. B. Scott of Princeton University has in a letter kindly suggested the name "Duchesne" for the Oligocene formation named "Upper Uinta," by Peterson and Kay.

sediments (Horizon C) than is usually the case in the superimposed horizons of other localities. There is, nevertheless, an advance corresponding to that of the lithological change noted.² The Titanotheres of the Duchesne Oligocene so far known represent an advance upon those found in Horizon C of the Uinta series. *Teleodus uintensis*³ is a typical Oligocene form, with frontonasal horns well developed; with two upper and three lower incisors, bearing the characteristic button-shaped crowns found in all the known Titanotheres of the White River Oligocene. The horses, or Anchitheres, and Tapiroids have the lower premolars more like the molars. The Cameloids are very distinctly advanced in the direction of those found in the White River Oligocene. The genus *Hyænodon* of the eastern Oligocene, not heretofore found in the Eocene of America, is recognized. With this assembly of forms there are, so far found, remains of Anchitheres, Amynodonts, Homacodonts, Agriochærids, and Mesonychids, as survivors from the underlying Eocene. The Amynodonts have the second lower premolar reduced to vestigial proportions. The Homacodonts and Mesonychids⁴ have advanced in their trend of evolution. It is quite safe to say, that, when more complete material is found representing the Agriochærids and the Oreodonts, they will be found to have similarly advanced.

The Duchesne Oligocene of the Uinta Basin may thus be regarded as a horizon quite perfectly transitional between the Upper Eocene and the Chadron horizon⁵ of the White River series of South Dakota. We were gratified in finding in the Duchesne Oligocene the genus *Hyænodon*, hitherto not reported from so low a level in the American Oligocene. In this vast deposit of strata, over one thousand feet thick, we have not yet discovered any horizons which abruptly traverse the formation, such as the well known *Metamynodon* and *Protoceras* Sandstones; the two latter being stream deposits, which contain sudden breaks in the Oligocene fauna of the White River Badlands of

²See Annals Carnegie Museum, Vol. XX, 1931, pp. 294-298.

³Annals Carnegie Museum, Vol. XX, 1931, p. 308.

⁴Annals Carnegie Museum, Vol. XX, 1931, p. 338.

⁵It should be noted here that the fauna which Mr. Douglass described from the "Sage Creek Beds" of Montana, Ann. Car. Mus. Vol. II, 1903, pp. 155-160, is in part probably a later facies than that in the Duchesne Oligocene of Utah. The stratum of the Sage Creek Beds of Montana in which "*Metamynodon*" was found might therefore have to be placed between the Chadron of Nebraska-Dakota and the Duchesne series of Utah.